VIGETHIA, A NEW GENUS OF COMPOSITAE BASED ON WYETHIA MEXICANA WATSON

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Current studies in the genus *Wyethia* (Compositae) reveal that the entity hitherto called *Wyethia mexicana* Watson differs from the other species of this genus in a number of important characters which are believed to be of generic value. Indeed, Watson expressed his own doubts as to its affinities when, in the original description, he noted that the plant was "rather abnormal in habit and involucre." The presence of fertile ray flowers and alternate leaves may have been prime considerations in deciding the issue, but entirely too much emphasis seems to have been placed upon a single character (that of the pappus) the taxonomic value of which had not been established. Watson placed the species in *Wyethia* with the remark that "the achene, though small, and pappus are wholly those of [that] genus." The real status of *Wyethia mexicana* has since remained obscure because of its great rarity and because a comprehensive study of *Wyethia* has never been made.

The hiatus between *Wyethia mexicana* and the 14 species comprising the remainder of the genus is much greater than that between any other two species. *Wyethia mexicana* is a sub-shrub 3 to 5 feet tall; all other *Wyethia* species are, at most, perennial herbs. The leaves of *Wyethia mexicana* are regularly crenate-dentate; those of other wyethias are entire or only sparsely and irregularly serrate-dentate. The stems of *Wyethia mexicana* are branched, while the stems of other wyethias are simple to the inflorescence. The roots of *Wyethia mexicana* are shallow, spreading and woody; those of other wyethias are deep, cylindric, vertical and fleshy. The achenes of *Wyethia mexicana* are only 3 mm. long exclusive of the pappus, while the achenes of other wyethias are never less than 6 mm. long and may be as long as 15 mm. Finally, no other *Wyethia* species are known to occur south of northern Lower California and northeastern Arizona.

These differences are so striking that in view of our present knowledge of the genus *Wyethia* it seems best to exclude *Wyethia mexicana* from that natural group. With a few exceptions, the characteristics which mark this species could more logically place it in *Viguiera*. However, it differs from *Viguiera* and its relatives in having pistillate ray flowers and alternate leaves, characters which are also believed to be of generic value. Since *Wyethia mexicana* apparently cannot be included in these or in any other established genus, it appears desirable to propose a new genus based on this entity, to occupy a systematic position between *Viguiera* and *Wyethia*.

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Vigethia gen. nov. Plantae suffruticosae ramosae foliis alternis ovatis crenato-dentatis triplinerviis. Capitula mediocris magnitudinis, heterogama, radiata, floribus radii ♀ 1-seriatis discique ☿ fertilibus. Involucrum hemisphaericum, bracteis 2–3-seriatis parum inequalibus, apice laxis squarrosisve discum haud superante. Receptaculum planum vel convexiusculum, paleis complicatis flores disci amplectentibus onustum. Corollae radii ligulatae patentes integrae vel minute 1–2-dentatae discique regulares tubo brevi limbo elongato cylindraceo apice breviter 5-fido. Antherae basi subsagittatae. Styli rami appendicimis longis hirtis terminati. Achaenia parva, disci quadrangulo-prismatica, radii compressiuscula, plus minus triangulata breve coronata. Squamellae patentes persistentes 3–4 glabrae coriaceae basibus coalitae.

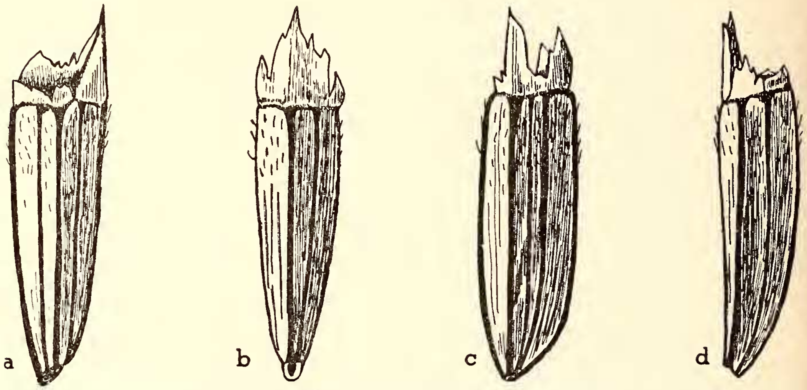

Fig. 1. Achenes of *Vigethia:* a, disk achene, lateral view; b, disk achene, ventral view; c, ray achene, ventral view; d, ray achene, lateral view. (× 15.)

Vigethia mexicana (S. Wats.) comb. nov. Species typica. *Wyethia mexicana* S. Watson in Proc. Am. Acad. 25: 154. 1890.

Sub-shrub, 1 to 1.6 meters high. Root system shallow, the roots coarse, stout, woody. Branches of the year striate, spreading hirsute, older branches glabrate. Leaves alternate, lance-ovate to subcordate, 6 to 10 cm. long, regularly crenate-dentate, green and appressed-hirsute above, cinereous-subtomentose beneath, conspicuously triple-nerved, with petioles one-fourth to one-third the length of the blades. Heads few, 1.5 to 2.5 cm. wide. Involucre hemisphaerical, about 3-seriate, the phyllaries lanceolate, pubescent and densely ciliate, with squarrose, attenuate tips. Paleae lance-linear with pubescent, dilated apices. Flowers yellow, the ample rays twice as long as the disk, pubescent and minutely resinous-dotted on the tube and back, styliferous and bearing 4 to 5 staminodia, the disk flowers glabrous except for the pubescent lobes. Achenes black, minute, 2.5 to 3 mm. long exclusive of the pappus, sparsely appressed-pubescent

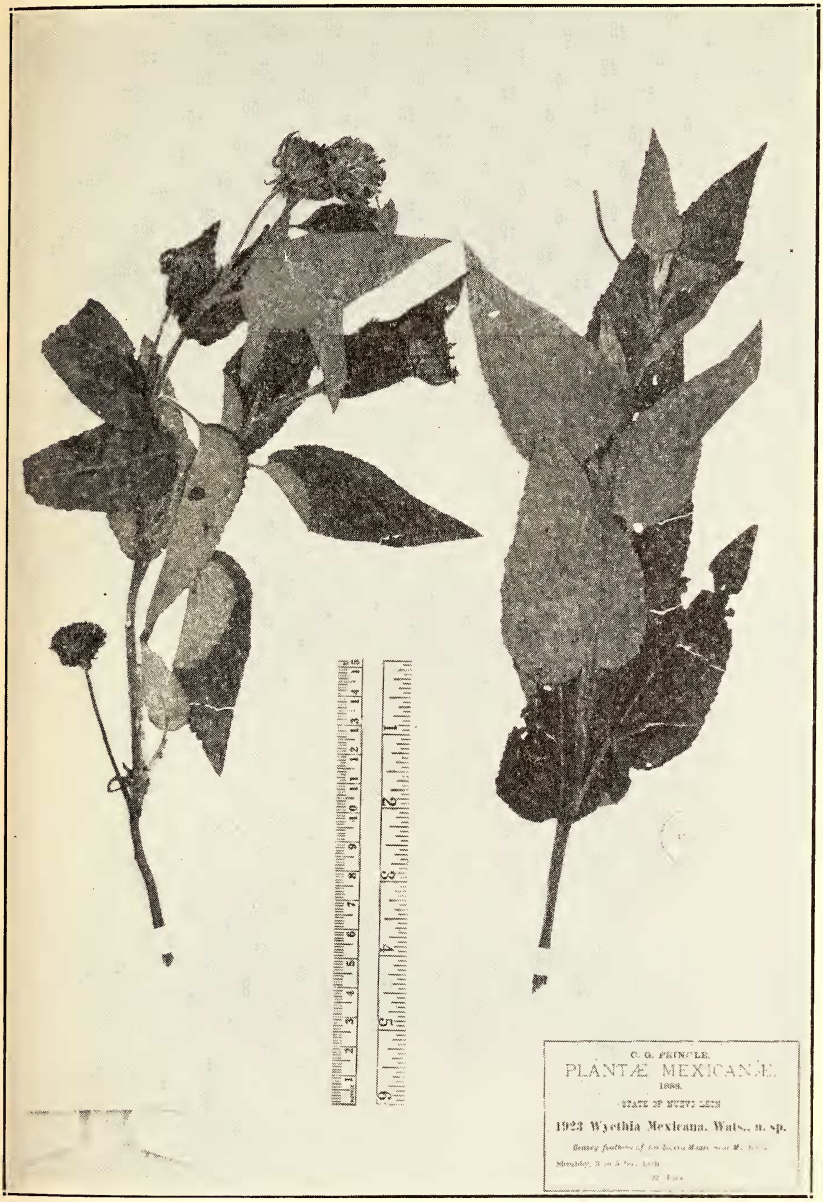

PLATE 20. VIGETHIA MEXICANA (S. Wats.) comb. nov. Photograph of type. (Gray Herbarium, Harvard University.)

on the upper half. Pappus light-colored, one-fourth to one-third the length of the achene.

Range. Known only from the type locality, foothills of the Sierra Madre near Monterrey, Nuevo Leon, Mexico.

Specimens examined. Mexico. Nuevo Leon: Monterrey, San Agustin, 600 meters altitude, July 1, 1911, *Bro. Abbon 145* (United States National Herbarium); grassy foothills of the Sierra Madre near Monterey [*sic*], June 22, 1888, *C. G. Pringle 1923* (Gray Herbarium, type; University of California; United States National Herbarium), June 10, 1889, *2704* (Missouri Botanical Garden; University of California); near Monterrey, 540 meters altitude, May 26, 1908, *C. G. Pringle 15616* (United States National Herbarium); Hacienda Vista Hermosa, 35 miles south of Monterrey, 705 meters altitude, June 29, 1939, *Stephen S. White 1624* (Gray Herbarium); above Horsetail Falls, Villa de Santiago, 750 meters altitude, June 18, 1940, *W. C. Leavenworth 104* (Missouri Botanical Garden; New York Botanical Garden).

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A REVISION OF THE GENUS FREMONTIA

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The study of the genus *Fremontia* (Sterculiaceae) was suggested to me by Dr. Philip A. Munz of Pomona College to whom I am greatly indebted for guidance and assistance. I wish to express my appreciation to Dr. Charles A. Weatherby of Gray Herbarium for help on the problem of nomenclature and to thank the curators of the following herbaria for kindly lending material which has been used in the preparation of this paper, especially Miss Alice Eastwood who generously lent type specimens from the California Academy of Sciences. The abbreviations indicated are those used in citing specimens: California Academy of Sciences (CAS); Dudley Herbarium, Stanford University (DS); University of California at Los Angeles (LA); New York Botanical Garden (NY); Pomona College (POM); Rancho Santa Ana Botanical Garden (RSA); San Diego Museum of Natural History (SD); University of California (UC).

The genus *Fremontia* was first collected by Colonel J. C. Fremont during his expedition to California from 1845 to 1847 and named and described in 1854 by John Torrey who thus commemorated the explorer for his valuable services to North American botany. An interesting and somewhat complicating situation existed at the time this genus was named in that the generic name *Fremontia* was first applied by Torrey (Fremont, First Rep., p.